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Obstructive sleep apnea (OSA) affects 1–5% of children. The diagnosis can be suspected clinically or confirmed with polysomnography (PSG). First-line treatment of OSA in children is adenotonsillectomy (T&A). Complications after T&A include bleeding, pain, dehydration, and respiratory events such as pulmonary edema or desaturations. PSG stratifies the severity of OSA, which may affect post-operative management. Our study aimed to determine whether pediatric patients undergoing PSG prior to surgery for sleep disordered breathing (SDB) have similar complication rates as those that did not undergo PSG.

A retrospective, cross-sectional cohort study was conducted in children, ages 2-17, who underwent an adenotonsillectomy with or without pre-operative PSG over an 18 month period at Brooke Army Medical Center (BAMC). Complications included emergency room visits or admissions for pain control, dehydration, respiratory distress or bleeding. Data was analyzed for patient characteristics and presence of a preoperative evaluation of sleep disordered breathing to see if they correlated with complication rates in children undergoing tonsillectomy. Chi-Squared tests were used to analyze relevant categorical data.

Complication	Patients, No. (%) (n = 73) ^a
Infection ^b	42 (58)
Surgical site complication	20 (27)
Unplanned reintubation	5 (7)
Substantial bleeding	5 (7)
Prolonged ventilator use	3 (4)
Other ^c	3 (4)

Infection indicates pneumonia, urinary tract infection, sepsis, or shock. Includes venous thromboembolic and renal complications.

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372 adenotonsillectomy cases were identified. Pre-operative polysomnography rate amongst our patient population was 67%. There was a statistical significance in the complication rate for those that underwent preoperative PSG compared to those that did not at 15.3% and 3.8%, respectively ($p=0.002$). There was a trend toward increased risk of complications based on the severity of OSA measured by increasing apnea-hypopnea index, but no statistical difference found. There was no statistically significant difference in complication rate based on sender.

The rate of pre-operative polysomnography within our cohort was higher than cited in other studies. There was a significant increased risk of complications in patients that had PSG prior to adenotonsillectomy, but increased OSA severity was not significantly correlated with higher rates of complications. These findings contribute to the data regarding appropriate use of PSGs prior to adenotonsillectomy in children, but further research is needed to completely stratify post-operative risk for these patients.